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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/991,827	11/13/2001	Horst Mueller	112740-373	6021
29177	7590	07/12/2005	EXAMINER	
BELL, BOYD & LLOYD, LLC P. O. BOX 1135 CHICAGO, IL 60690-1135			SOL, ANTHONY M	
			ART UNIT	PAPER NUMBER
			2662	

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/991,827	MUELLER, HORST	
	<b>Examiner</b>	<b>Art Unit</b>	
	Anthony Sol	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2001.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/30/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities:

In the "Detailed Description of the Invention" section, the following are

Informalities:

- Page 2, line 18, says, "DMUX (inverse demultiplexer)". It is believed the applicant intended to state, -- DMUX (inverse multiplexer) --.
- Page 3, line 15, says, "194 to column 394". It is believed the applicant intended to state, -- 194 to column 384 --.

Appropriate correction is required.

### ***Claim Objections***

2. Claim 1 is objected to because of the following informality:

The preamble states, "having a high byte rate." The word "high" is indefinite. It is suggested that that the phrase above be omitted or replaced with -- having a higher byte rate than the STM-64/OC-192 data signal --.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 2, 4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 2,

The applicant discloses starting on page 2, line 31, "the number of A2 bytes having been reduced by 8 bytes and the frame alignment bytes A2 having been replaced by information bytes I11, I12.... Only 384 times slots are reserved for the overhead information OH." It is unclear how the applicant arrives at "384 time slots" and how it is distinguished from the standard SDH/SONET transport overhead. Specifically, in claim 2, how does the applicant arrive at "a maximum of 384 bytes are not available for transmitting data of one of the subsignals" from the "number of A2 bytes being reduced by 8 bytes" as disclosed in the specification?

5. Regarding claim 4,

The applicant discloses on page 2, that bytes NU, A1, A2, NU are omitted in the concatenated subsignals IMA1 to IMA4. The applicant also discloses on page 3, line 18 that "the reduction in the number of frame alignment bytes is necessary since  $9 \times 69,120 - 1536 \text{ bytes} = 620,544 \text{ bytes}$  in total must be

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inserted into the four pulse frames PR64.1 to PR64.4 from the pulse frame

PR256.” Why is 620,544 bytes significant and where does it come from?

How are the 4 omitted bytes NU, A1, A2, NU related to 1536 bytes?

Specifically, in claim 4, why is 1536 bytes unused and how is it arrived at?

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1,

The claim does not distinctly point out which unused bytes of the overhead and frame alignment bytes are removed. Another limitation states, “inserting a corresponding number of bytes...” The phrase “corresponding number” is indefinite. In addition, which bytes of the modified pulse frame are inserted?

Regarding claims 2-8,

Claims 2-8 are rejected under 35 U.S.C. 112, second paragraph, since they depend from claim 1.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,452,307 ("Koyama"), in view of U.S. Patent No. 6,891,862 B1 ("Brady")

Koyama shows in Fig. 1, low speed transmission lines 8 (STM-64/OC-192), a high-speed transmission line 11 (STM-256/OC-768) (Col. 4, lines 21-23). He further shows a high-speed multiplexer/demultiplexer 4 which performs the data multiplexing and demultiplexing between the low speed and high speed signals (Col. 4, lines 33-39).

Koyama discloses a data demultiplexing mode, where the high-speed transmission line signal has its signal format converted to the low-speed transmission signal. The resulting signal is sent to the high-speed demultiplexer 4 as the secondary multiplexed signal. The high-speed demultiplexer 4 demultiplexes the secondary multiplexed signal into the plurality of primary multiplexed signals (dividing the data signal byte by byte into four concatenated subsignals), which are respectively sent to the predetermined bus lines 2. The low-speed interface interface boards 3 accept the signals of the designated time slots and they convert the accepted signals into the digital signals matched with

the corresponding low-speed side transmission lines 8 (inserting the subsignals into the modified pulse frames). The resulting signals are respectively sent (transmitting the subsignals) to the low-speed side transmission lines 8 as the low-speed digital signals (Col. 4, lines 66-69, col. 5, lines 1-39).

Koyama describes a data multiplexing mode where low speed signals have their signal format converted and the resulting signals respectively multiplexed in the designated time slots within the primary multiplexed signal on the bus line 1 of the data multiplexing bus. The high-speed multiplexer 4 collects (combining the subsignals at the receiving end) the primary multiplexed signals on the plurality of up bus lines 1, and further multiplexes the collected signals up to a predetermined signal level.

Koyama does not expressly disclose that the high-speed signal is STM-256/OC-768 data signal and the low speed signal is STM-64/OC-192. Koyama also does not expressly disclose that the high-speed data signal is divided into concatenated signals by removing unused bytes of overhead and frame alignment bytes. Koyama also does not expressly disclose that the modified STM-64/OC-192 pulse frames have a reduced number of frame alignment bytes. Koyama also does not expressly disclose inserting a corresponding number of bytes of the subsignals into each modified pulse frame instead of the frame alignment bytes no longer transmitted. Nor does Koyama expressly disclose inserting the remaining bytes of the respective subsignal into unused time slots of an overhead and a payload of the modified pulse frame.

Brady shows in Fig. 2 the STM-256/OC-768 and STM-64/OC-192 signal levels. Brady further shows in Table 1 that payloads for new containers/subsignals are larger than that of the corresponding G707 container/data signal. This is due to the extra columns allocated for nesting pointers in an AU-n to TU-n translation. In other words, extra bytes are added for overhead and framing bytes. Reversely, unused bytes of overhead and frame alignment bytes are removed when dividing the high-speed data signal into concatenated subsignals. It follows then that the subsignal STM-64/OC-192 pulse frames have reduced number of frame alignment bytes. It also follows then that a corresponding number of bytes of subsignals is inserted into each modified pulse frame instead of the frame alignment bytes no longer transmitted and that the remaining bytes of the respective subsignal into unused time slots in light of the fact that the payloads of the subsignals are larger than the data signal as discussed above and shown in Table 1.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include in the method of multiplexing/demultiplexing of Koyama to include the method of removing unused bytes of the data signal and inserting corresponding bytes of the subsignal of Brady in order to efficiently use all the available bytes in the transmission of the subsignals. One skilled in the art would have been motivated to combine Koyama with Brady (collectively "Koyama-Brady") to generate the claimed invention with a reasonable expectation of success.



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10. Claims 3 and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama in view of Brady, and in further view of U.S. Patent No. 6,493,847 B1 ("Sorgi")

Regarding claim 3,

Koyama-Brady discloses a method that substantially covers all the limitations of the parent claim.

Koyama-Brady does not disclose that the modified pulse frames contain a further eight overhead bytes

Sorgi shows in Fig. 2A, 8 overhead bytes J0, C2, B1, E1, F1, D1, D2, and D3.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include in the modified pulse frame of Koyama-Brady the 8 overhead bytes of Sorgi in order for the subsignal frames to be transmitted efficiently. One skilled in the art would have been motivated to combine Koyama-Brady with Sorgi (collectively "Koyama-Brady-Sorgi") to generate the claimed invention with a reasonable expectation of success.

11. Regarding claim 5,

Koyama-Brady-Sorgi discloses a method that substantially covers all the limitations of the parent claim.

Sorgi shows a C2 byte of the path overhead in Fig. 2A, which is an STS path signal label byte. This byte is used to indicate the content of the STS SPE. This label byte can be used for numbering (Claim 5) the modified pulse frames.

12. Regarding claim 6,

Koyama-Brady-Sorgi discloses a method that substantially covers all the limitations of the parent claim.

Brady discloses that higher rate signals are called STS-N and STM-N, where "N" takes in practice certain integer values (Claim 6: superframe is formed with an integral multiple of pulse frames; Col. 1, lines 38-39).

13. Regarding claims 7-8,

Koyama-Brady-Sorgi discloses a method that substantially covers all the limitations of the parent claim.

Sorgi shows a C2 byte (Claim 7) of the path overhead in Fig. 2A, which is an STS path signal label byte. This byte is used to indicate the content of the STS SPE, such as numbering. The C2 byte can also be used to mark the beginning of the superframe (Claim 8).

### ***Conclusion***

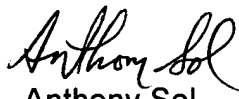
14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Sol whose telephone number is (571) 272-5949. The examiner can normally be reached on M-F 7:30am - 4pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Anthony Sol  
Examiner  
7/5/2005



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